

## THE DIPTERA OF THE TERRITORY OF NEW GUINEA. XIII.

## FAMILY TABANIDAE. PART I. THE GENUS CHRYSOPS.

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(Plate x; two Text-figures.)

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The present contribution, the first of a series on the family Tabanidae, like some previous papers of this series, is not confined to species from the Territory of New Guinea. It has been decided, after due consideration, on account of recent activities in these areas, to give descriptions and illustrations of species from the Molucca Islands eastward to the Bismarck Archipelago and the Admiralty Islands.

There is a fairly considerable literature extending over a long period. Fabricius in 1805 appears to have been the first author to name a Tabanid from the northern part of the Australian Region, then follow Macquart (1838), Francis Walker (1848 to 1866) based on the Wallace Collections, Doleschall (1858), van der Wulp (1868), Megnin (1878), Bigot and Roeder (1892), Ricardo (1913), de Meijere (1915 and 1917), and finally Schuurmans Stekhoven (1924 and 1926).

I desire to extend my very sincere thanks to the late Dr. F. W. Edwards and Mr. H. Oldroyd for sending to me on loan the undetermined specimens of Tabanidae contained in the British Museum (Nat. Hist.) from the Territory of New Guinea and Papua, in the main collected by Miss L. E. Cheesman, also to Mr. N. D. Riley, Keeper, Department of Entomology, for many courtesies, and finally, to Dr. John Smart of the same department for checking the series of drawings made by Mr. Arthur Smith from the types and/or named specimens in the British Museum (Nat. Hist.).

The following descriptions are based on those of Schuurmans Stekhoven.

## CHRYSOPS ALBICINCTA van der Wulp. Plate x; Text-fig. 1.

*Tijdschr. Ent.*, xi, 1868, 103, pl. 3, fig. 6; Osten Sacken, *Ann. Mus. Stor. nat. Genova*, xvi, 1868, 418; Ricardo, *Rec. Ind. Mus.*, iv, 1911, 377; *Nova Guinea*, ix, 1914, 406; Schuurmans Stekhoven, *Treubia*, vi, Suppl. 1926, 22.

♀. Head: Front broad, black, denuded; callus transverse, nearly reaching the eyes. broader than long, shining black to dull red-brown, half-moon shaped, grooved, somewhat prominent between the antennae; ocellar plate rectangular, shining black, nearly reaching eyes, covered with black hairs; cheeks havanna-brown, shining, pubescence brownish-black, with some white hairs close to the base of the palpi; beard white: clypeus shiny, ochraceous-brown, with sparse brownish hairs; black or reddish-brown patches on the cheeks at the upper edges of the facial callus; facial callus with a shallow indentation at its upper border in the middle; antennae: segments almost equal in size, from two to two and a half times as long as the head, first segment with annuli faintly indicated, ochraceous-yellow, darker toward the slightly swollen apex which is pale havanna-brown, with sparse black pubescence, second segment with five annuli, in some lights apparently six, dark havanna-brown, black haired, third segment bare, first annulation broadened near the base, with four faint annulations, shining black at base, rest dull brown, the four apical annuli deep velvety black; palpi short, reddish-brown, with black hairs.

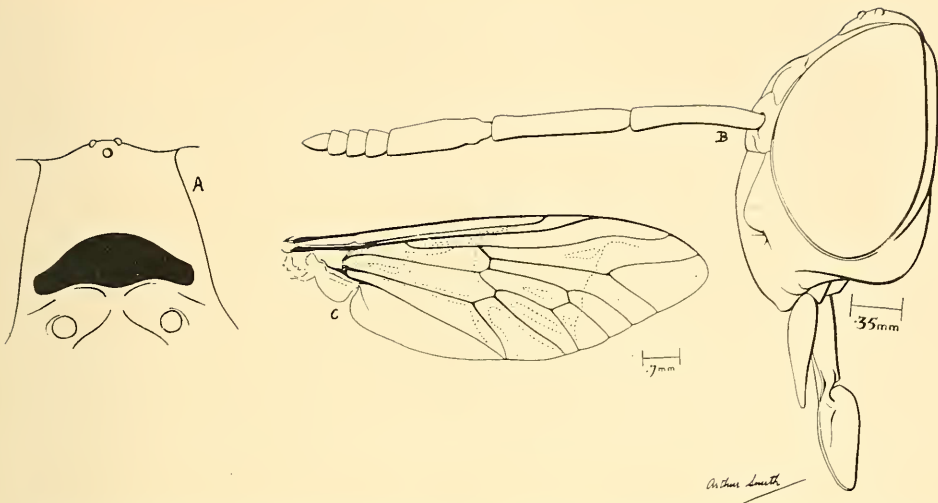


Fig. 1.—*Chrysops albicincta* van der Wulp. A, Front showing frontal callus. B, Head in profile with antenna. C, Wing showing pattern. (A and B same magnification.)

Thorax black, with scanty black hairs on disc, the posterior border of the scutum with a narrow line of golden-yellow hairs, prolonged along the lateral borders of the scutum as a falciform tuft; pteropleuron with golden-yellow hairs; scutellum black; pleurae shining black to blackish-brown, with black hairs; lobe of the mesopleuron distinctly tinged red-brown; the shoulders sparsely covered with black hairs.

Wing as illustrated, veins yellow-brown, except on the markings where they are havanna-brown; halteres red-brown.

Legs: Fore-coxa black-brown, covered with brownish hairs, trochanter black-brown, femur yellow to reddish-brown, black haired, tibia and tarsus olive-brown, black haired; mid-coxa and trochanter black-brown, black haired, femur tawny, black haired, tibia havanna-brown, black haired, swollen, tarsus straw-yellow, black haired; hind-coxa black with velvety brown apical border, white haired, trochanter red-brown, femur reddish-brown to black, sparsely covered with yellowish-brown hairs, tibia as in mid-leg, less stout, black haired.

Abdomen black, first segment chocolate-brown, except two small white median spots, nearly touching the scutellum, and separated by a very narrow longitudinal stripe, posterior border black, second segment broad, chocolate-brown, with a yellowish-white ring basally, surrounding the entire segment, widening to the lateral borders of the tergite; ventrally it becomes more brownish-white and covers also a part of the first segment. Some specimens show a brownish-white longitudinal stripe in the middle of the black band of the second segment. Dorsum elsewhere black, venter blackish-brown to black, covered with black hairs except on the pale spots where they are white.

Length: 7.5 mm.

*Habitat*: Salawati Island (type); Netherlands New Guinea, numerous localities.

The above description is from Schuurmans Stekhoven. He notes that a female specimen from South New Guinea has the front grey tomentose and grey haired. Ricardo states that the wing markings of this species are typical and distinct from any Oriental species.

Ricardo describes the wing as having a broad transverse band with a hyaline sinus in the fifth posterior cell, and an apical spot, the apex beyond being grey, with the dark colouring in fore border and in the basal cells reaching to about two-thirds of the length in the first one, and half the length in the second basal cell. Schuurmans Stekhoven's specimens mostly had smaller brown spots in the basal cells with the grey colouring absent in some of them.

The illustrations in Text-figure 1 were made by Mr. Arthur Smith from a specimen in the British Museum (Nat. Hist.) determined either by the late Major E. E. Austen or Miss Ricardo.

The location of type is unknown to me. Specimens in the following institutions: Natura Artis Magistra Museum, Holland, Buitenzorg Zoological Museum, N.E.I., Leyden Museum of Natural History, Holland, and the British Museum (Nat. Hist.).

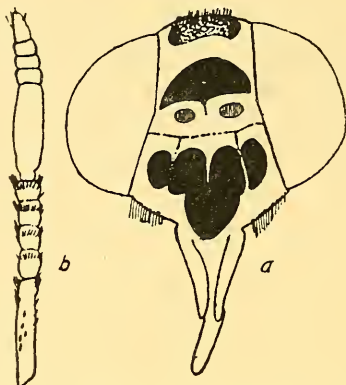


Fig. 2.—*Chrysops atrivittata* Sch. Stekh. a, Front of head. b, Antenna. After Schuurmans Stekhoven.

CHRYSOPS ATRIVITTATA Sch. Stekh. Plate x; Text-fig. 2.

*Treubia*, v, 1924, 317, pl. v; op. cit., vi, 1926, Suppl., 26, pl. 1, fig. 4; text-fig. 8.

♀. Head: Eyes unicolourous mauve, when moistened they show three distinct dark patches; front broad, nearly same width throughout, very slightly narrower at vertex, yellowish-grey tomentose sooty in some places; callus dark black-brown in type, not reaching the eyes, varying from red-brown to black-brown in other specimens, shining, convex to the posterior end, pointed between the antennae, bearing a shallow flat groove, which divides the callus into two unequal halves, surrounded by a whitish-grey margin; ocellar triangle with rounded sides, and with a moderately dense covering of long yellow-brown hairs, similar hairs in the space between the eyes and the ocellar triangle; excavation behind the callus is white haired; antennae: first segment yellow-brown, darker bismarck-brown toward apex, indistinctly 6-7 ringed, barely visible at base, distinct toward apex, black-brown hairs more or less arranged as festoons, corresponding with the rings, short and appressed basally, longer and denser intermixed with some white hairs apically, especially on the three apical rings, apex of first segment with short yellow pubescence in some specimens; second segment dark olive-brown with a black tint nearly as long as the first segment, slightly broader, five ringed, sometimes four or six, black hairs as in the first segment, longer on the distal lateral border than on the proximal border, with some mixed white hairs; third segment broader than the second, shorter than the first and second but longer individually, with five distinct rings, velvety-brown basally, almost black-brown apically, basal annulation longer than those apically together, fifth annulation is nearly as long as the third and fourth, apically blunt; palpi with first segment brownish-black, very short triangular, covered with long black hairs, second ochraceous yellow-brown, at least four times as long as the first, ending in a blunt point, pubescence mainly yellow-brown with a few black hairs; proboscis with long labella with mixed long and short dark brown hairs ventrally, reddish-ochre-brown dorsally, ventrally more blackish-brown; cheeks and face yellowish-pollinose except on the two shining dark olive-brown streaks on the lateral border of the clypeus, median part of clypeus bright ochraceous, pubescence long, yellow, beard bright brownish-yellow-white, cheeks elsewhere nearly devoid of long hair.

Thorax with a median dull rusty-brown stripe, latter darkened laterally, sides reddish-brown to black with a violet hue, pubescence short and sparse varying from

bright to dark brownish-yellow, posterior border of scutum with a broad line of golden hairs ending laterally in a triangular tuft of golden-yellow hairs; pteropleuron golden haired, pleurae olive-brown with golden-yellow hairs, mesosternum blackish-brown covered with blackish-brown pubescence; scutellum dark reddish-brown with a median transverse very narrow black spot fringed with bright yellow-brown short pubescence, halteres with a dull bismarck-brown stem and dark blackish-brown knob.

Wings as illustrated in Plate x.

Legs: Coxa of fore-leg whitish tomentose, shining black basally, the middle swollen, covered with black hairs, distal lateral border with yellowish-brown hairs, proximal lateral border bright oak-brown, with a reddish hue, with brownish-black hairs mixed with some white ones, femur rusty brown, darker than trochanter, densely covered with black hairs dorsally, lateral distal border with a row of erect, long, black hairs decreasing in length to the base, tibia dilated slightly over the middle, oak-brown, densely covered with short appressed hairs, tarsals one to four same colour as tibia, fifth tarsal black, some erect, relatively long, dirty white hairs on its hind border, elsewhere black haired, mid-leg with coxa and trochanter both short, dark brown, hairs scanty, femur same colour as in fore-leg, knee yellow, dorsal surface black haired, sides with a fringe of black hairs increasing in length toward the apex, tibia black-reddish-brown, slightly dilated, densely covered with black hairs, ventral surface with black hairs, mixed with some white ones basally and apically, first tarsal very long, nearly as long as two to five together, mainly black haired, a number of short appressed yellow hairs on basal third, lateral margins yellow haired, tarsals two to four yellow haired with an apical ring of black hairs, some black hairs on the proximal lateral border, fifth tarsal black, with five long white hairs apically; posterior leg: coxa swollen with yellowish-brown hairs, mixed with some black ones, trochanter short, narrow, femur dark yellow-brown densely covered with black hairs, some longer yellowish-white ones being scattered over the whole surface, tibia shining dark brown, basally swollen, black haired, attenuated, long, longer than two to five together, brownish-yellow, black haired dorsally with some intermixed yellowish-white hairs laterally, ventral surface mainly yellowish-white haired, apical ring black haired, two to four yellowish-brown, black haired, ventral surface with a black haired apical band, elsewhere yellow haired, fifth black on dorsal half, ventral surface yellowish-brown with the apical ring black haired.

Abdomen with four longitudinal stripes, joined on the second and third segments, first segment hazel-brown with two black spots, second yellow, laterally black with a small yellow spot on each side, segment three with four longitudinal black stripes connected in pairs posteriorly; the enclosed areas are yellowish-brown, all black stripes interrupted at the borders of the segments, median stripes broader than the laterals, remaining segments similar, colour of segments increasingly dark toward the apex, first segment with brownish-yellow hair, spots black haired, second with yellowish-white, markings black haired, third mainly black haired, with some yellowish-white ones, remaining segments black haired except for the apical and basal yellow fringe; venter yellowish-white haired on first two segments, remainder reddish-brown with black hairs, some mixed yellow hairs on the seventh.

Length: 9.2 to 11.0 mm.

*Habitat*: Buru Island, Rana (type), Koentoeroen Marsh.

Related to *Chrysops designata* Ricardo but may be readily distinguished.

Type and other specimens in the Natura Artis Magistra Museum, Holland.

#### CHRYSOPS SIGNIFER Walker. Plate x.

*Proc. Linn. Soc. Lond.*, v, 1861, 276; Osten Sacken, *Berl. ent. Z.*, xxxvi, 1882, 97; Ricardo, *Ann. Mag. nat. Hist.*, (7) ix, 1902, 376; Schuurmans Stekhoven, *Treubia*, v, 1924, 324; op. cit., vi, 1926, Suppl., 43.

♂. Head: Eyes with large facettes on the upper half and are mainly yellow-brown, lower half black, facettes small; ocellar plate with small erect hairs; antennae rising from piceous pits, first segment dorsally coffee-brown at base, remainder blackish, black

haired, indistinctly eight ringed, second segment black with eight indistinct rings, first five narrow, last three broad, swollen at the borders, first and second segments equal in length, third segment bare, black, slightly longer than the second, incrassate at base, five distinct annulations, the first as long as two to five inclusive, apex bluntly rounded; clypeus shining black, with a narrow median yellow-grey tomentose stripe; subcallus yellow tomentose; cheeks golden-yellow with similarly coloured hairs, beard the same colour; proboscis piceous, labella with short brown-black hairs; palpi black, very short.

Thorax: Scutum black, median line with short golden-yellow hairs, posterior border with dense golden-yellow hairs, lateral tufts golden-yellow, shaped as a ? mark; scutellum piceous.

Wings as illustrated in Plate x.

Legs: Fore-leg, coxa piceous with erect black hairs, femur dark chocolate-brown, black haired, lateral border with short hairs, distally the hairs are long and erect, tibia somewhat swollen basally, chocolate-brown at base, rest black, hairs black, tarsals black, black haired, mid-leg with femur and tibia similar, black haired, first tarsal with a row of black hairs along the proximal lateral border, remaining tarsi whitish with a brownish hue, apices with black hairs, ventral surface with dense black hairs, hind-leg with femur and tibia black covered with long, erect hairs, first tarsus dirty yellowish-brown, black haired, tarsi two to four similar, fifth tarsus of all legs black.

Abdomen: First segment posteriorly with a narrow black transverse band touching the anterior border of the second segment in the median line and curving backwards laterally to the middle of the lateral margin, first segment yellow elsewhere, with brownish-yellow pubescence, second segment clear yellow, yellowish-white haired with a crescent shaped blackish-brown band apically not reaching the lateral border of the segment, third with a broad concave blackish-brown hoof-shaped band drawn out to and touching the crescent-shaped pattern of the second, lateral borders of this segment yellowish-white with yellowish-white hairs, both segments with an enclosed curved triangular yellow spot with sharp basal angles, all dark markings with blackish-brown hairs, segments four to seven terracotta-reddish-brown, fourth and fifth with blackish median indistinct spots, pubescence brown intermixed with yellow hairs; venter: fourth segment with a brownish-red almost black transverse band, a blackish stripe connecting this band with the dorsal marking on the third segment, seventh entirely black haired, fifth and sixth oakleaf reddish-brown, pubescence the same, first three segments yellow-haired.

Length: 10.5 mm.

*Habitat*: Batjan Island (type); Buru Island.

Closely related to *Chrysops cincta* Bigot.

Type, ♂, in the British Museum (Nat. Hist.).

#### EXPLANATION OF PLATE X.

*Chrysops albicincta* van der Wulp. (Top.)

*Chrysops atrivittata* Sch. Stekh. (Middle.)

*Chrysops signifer* Walker. (Bottom.)

(All illustrations after Schuurmans Stekhoven.)